FIG. 1

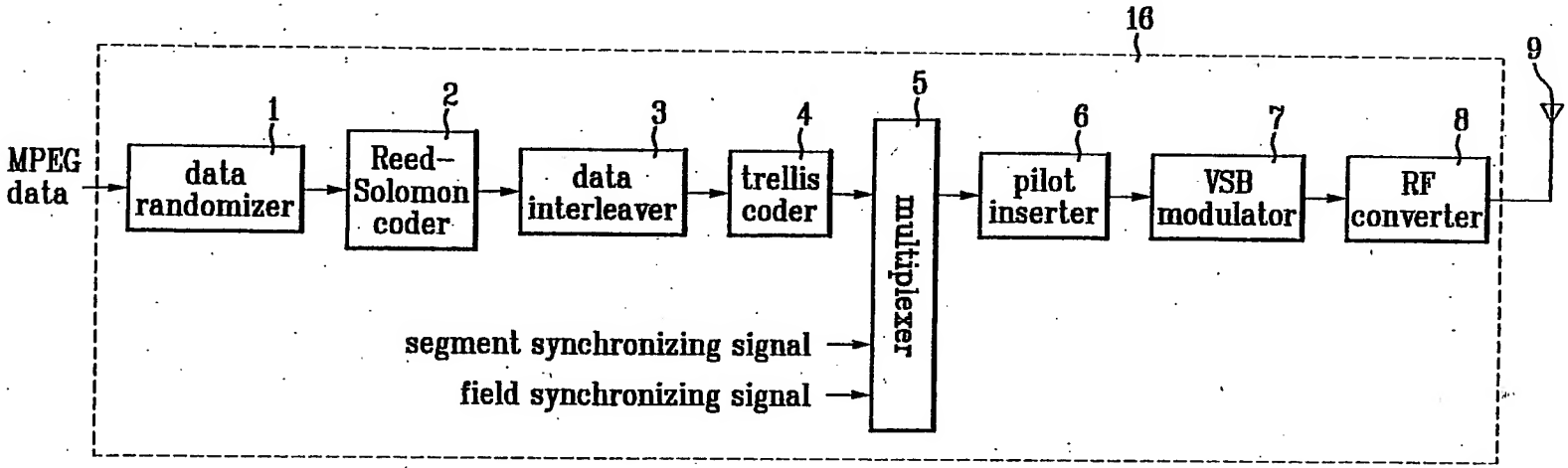

16
9
MPEG data
1
data randomizer
2
Reed-Solomon coder
3
data interleaver
4
trellis coder
5
multiplexer
6
pilot inserter
7
VSB modulator
8
RF converter
segment synchronizing signal
field synchronizing signal

FIG. 2

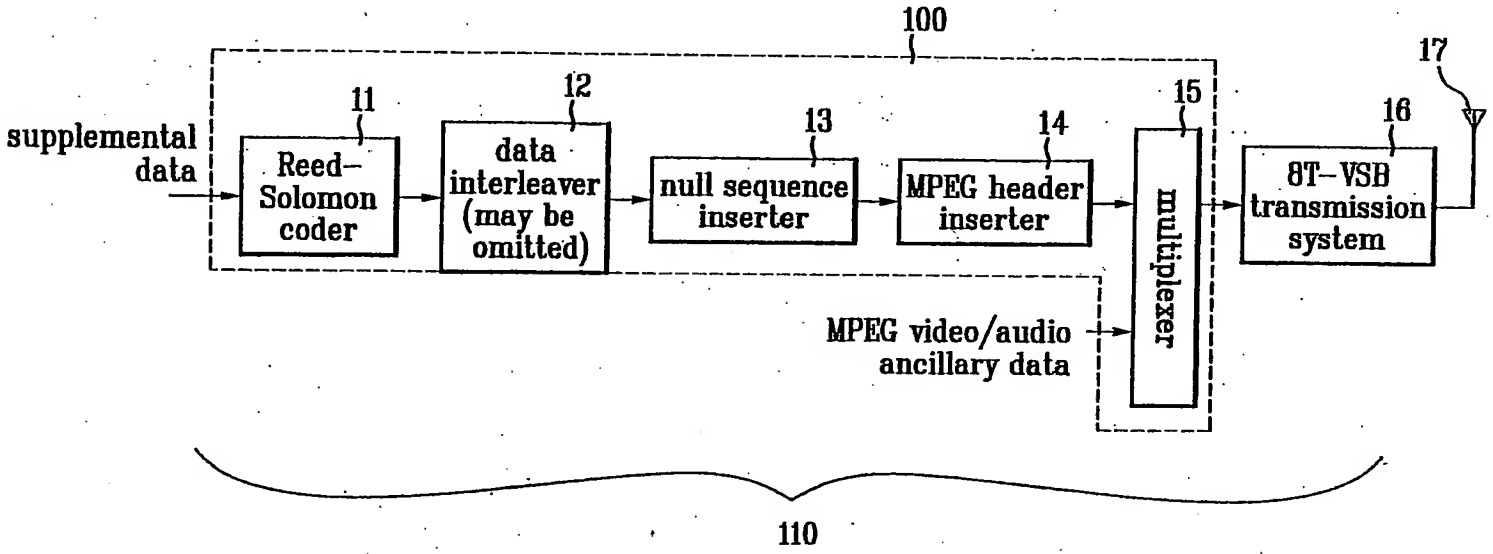

100
17
11
12
13
14
15
16
supplemental data
Reed–Solomon coder
data interleaver (may be omitted)
null sequence inserter
MPEG header inserter
multiplexer
8T–VSB transmission system
MPEG video/audio ancillary data
110

FIG. 3

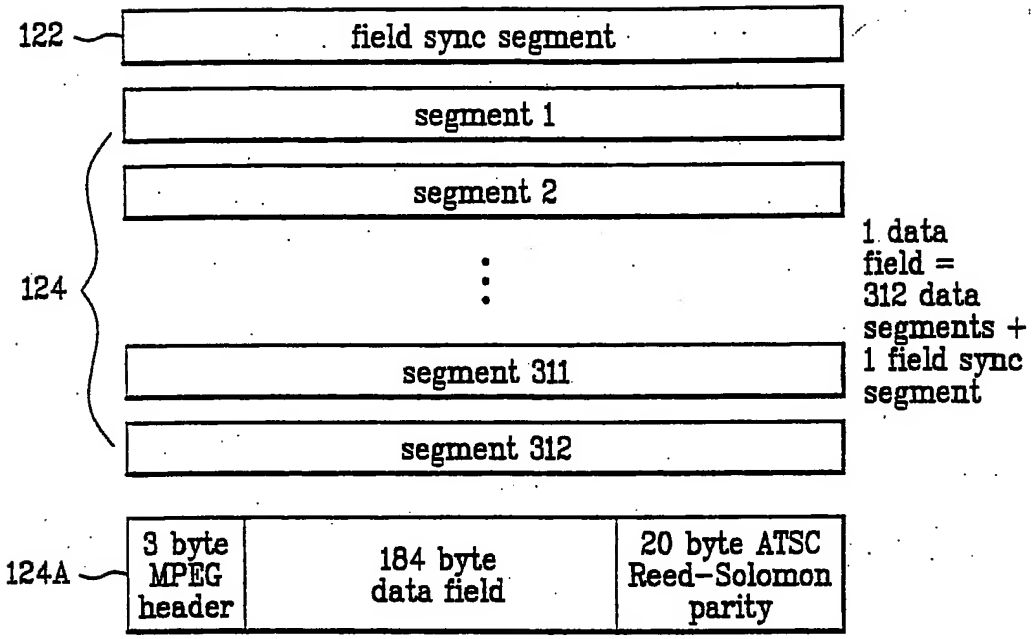

122
field sync segment
segment 1
segment 2
124
segment 311
segment 312
1 data field = 312 data segments + 1 field sync segment
124A
3 byte MPEG header
184 byte data field
20 byte ATSC Reed-Solomon parity

FIG. 4

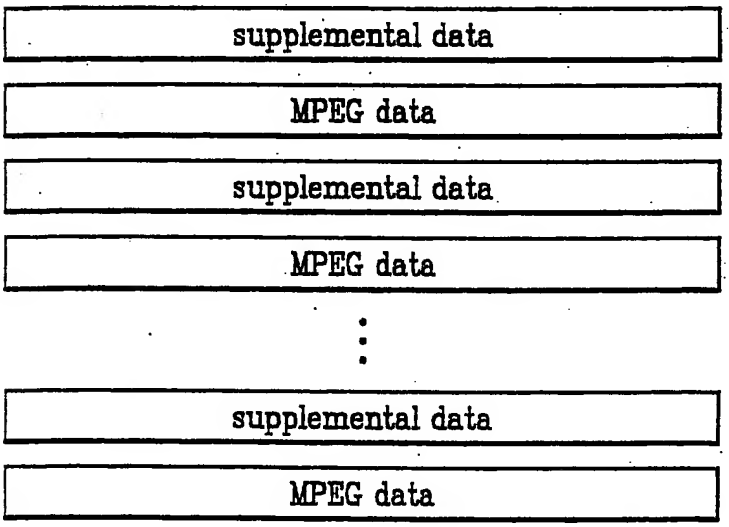

supplemental data
MPEG data
supplemental data
MPEG data
supplemental data
MPEG data

FIG. 5

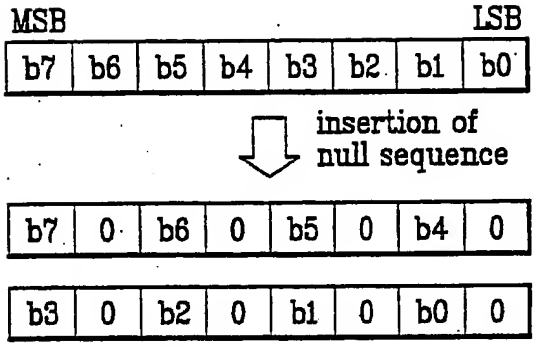

MSB
LSB
b7 b6 b5 b4 b3 b2 b1 b0
insertion of
null sequence
b7 0 b6 0 b5 0 b4 0
b3 0 b2 0 b1 0 b0 0

FIG. 6

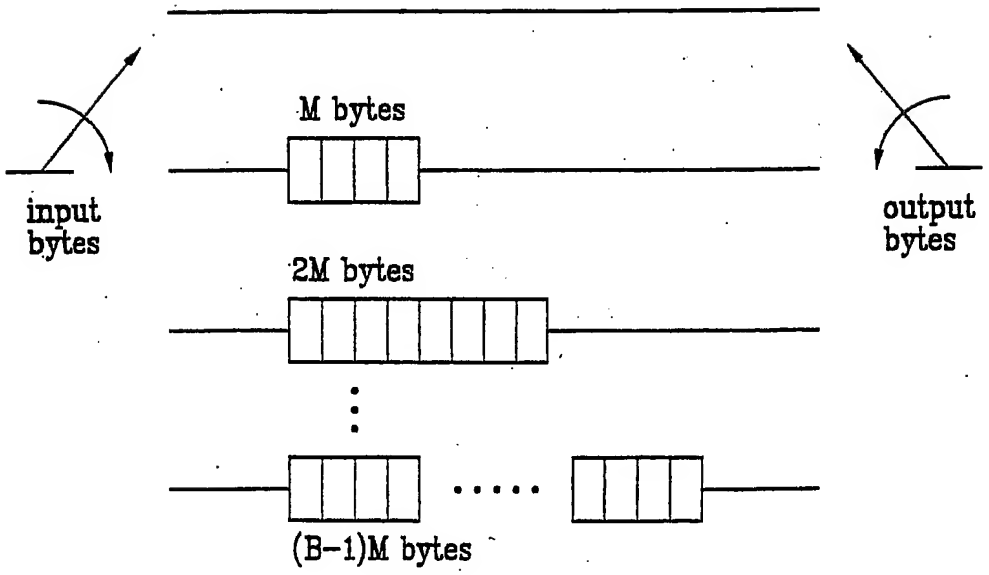

M bytes
input
bytes
output
bytes
2M bytes
(B-1)M bytes

FIG. 7

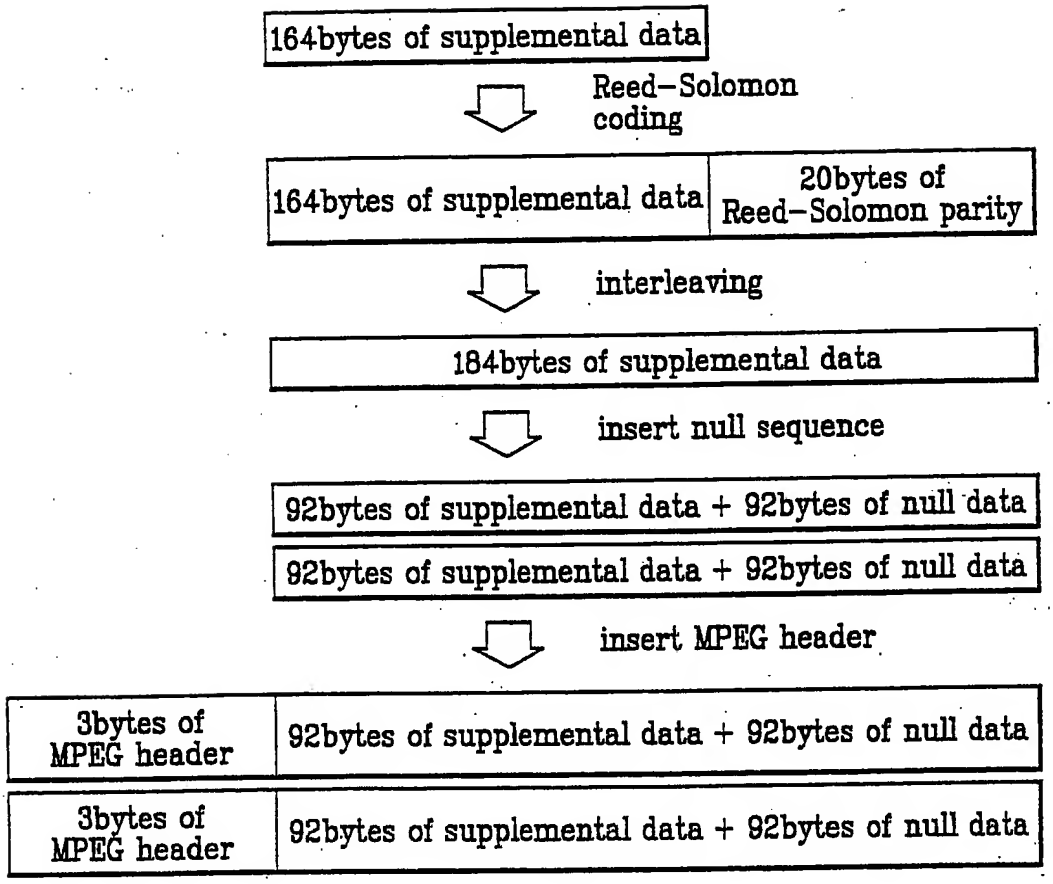
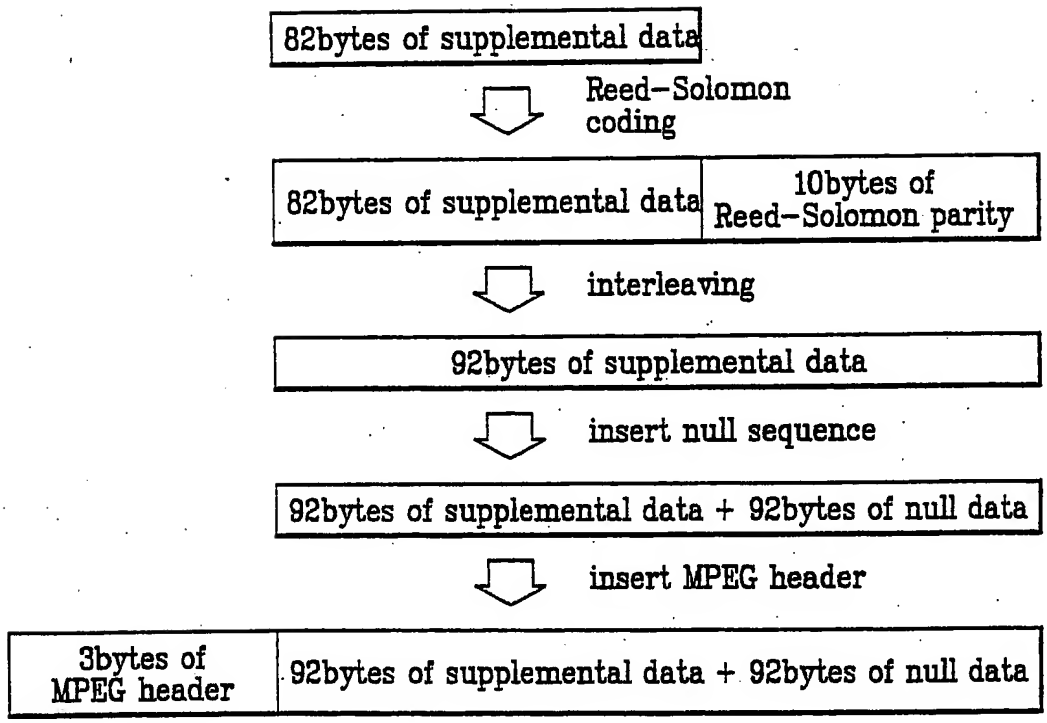

164bytes of supplemental data
Reed-Solomon coding
164bytes of supplemental data
20bytes of Reed-Solomon parity
interleaving
184bytes of supplemental data
insert null sequence
92bytes of supplemental data + 92bytes of null data
92bytes of supplemental data + 92bytes of null data
insert MPEG header
3bytes of MPEG header
92bytes of supplemental data + 92bytes of null data
3bytes of MPEG header
92bytes of supplemental data + 92bytes of null data

FIG. 8


82bytes of supplemental data
Reed-Solomon coding
82bytes of supplemental data
10bytes of Reed-Solomon parity
interleaving
92bytes of supplemental data
insert null sequence
92bytes of supplemental data + 92bytes of null data
insert MPEG header
3bytes of MPEG header
92bytes of supplemental data + 92bytes of null data